having nitrilase activity hydrolyzes the amino nitrile or cyanohydrin intermediate to produce an alpha-substituted carboxylic acid.

Claim 33 (NEW) The method of claim 31 or 32, wherein the nitrilase or polypeptide having nitrilase activity stereoselectively hydrolyzes the amino nitrile or cyanohydrin intermediate to produce an enantiomerically pure alpha-substituted carboxylic acid.

Claim 34 (NEW) The method of claim 31 or 32, wherein the alpha-substituted carboxylic acid is an alpha amino acid.

Claim 35 (NEW) The method of claim 31, wherein the cyanide-containing compound comprises a metal or a gaseous cyanide compound.

Claim 36 (NEW) A method for producing an alpha-amino acid, the method comprising

(a) providing an aldehyde or a ketone;

(b) providing a cyanide-containing compound and ammonia;

(c) providing a nitrilase or a polypeptide having nitrilase acitivity;

(d) contacting the aldehyde or ketone of step (a) with the cyanide-containing compound and ammonia of step (b) such that an amino nitrile is produced; and

(e) contacting the amino nitrile of step (d) with the nitrilase or polypeptide having nitrilase activity of step (c) such that the nitrilase or polypeptide hydrolyzes the amino nitrile to produce an alpha-substituted amino acid.

Claim 37 (NEW) The method of claim 31, claim 32 or claim 36, wherein the reaction takes place in a single reaction vessel.